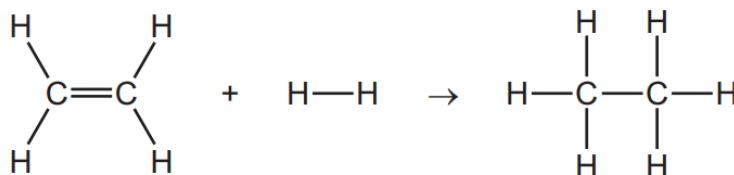# ENTHALPY CHANGE CALCULATION

1   Ethene reacts with hydrogen to form ethane.
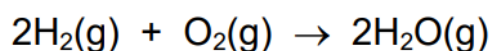

The bond energies are shown in the table.

bond	bond energy in kJ/mol
C–C	+350
C–H	+410
H–H	+436
C=C	+614

What is the energy change for the reaction?

A $-290\,kJ/mol$

B $-120\,kJ/mol$

C $+120\,kJ/mol$

D $+290\,kJ/mol$

2   The reaction between hydrogen and oxygen releases $486\,kJ/mol$ of energy.

$$2H_2(g) \ + \ O_2(g) \ \rightarrow \ 2H_2O(g)$$

The bond energy of H–H is $436\,kJ/mol$ and that of H–O is $464\,kJ/mol$.

What is the bond energy of O=O?

A $430\,kJ/mol$

B $458\,kJ/mol$

C $498\,kJ/mol$

D $984\,kJ/mol$